



MATHS

BOOKS - JEE MAINS PREVIOUS YEAR ENGLISH

DETERMINANTS

Others

1. If $D = \begin{vmatrix} 1 & 1 & 1 & 1 & 1 \\ 1 & x & 1 & 1 & 1 \\ 1 & 1 & x & 1 & 1 \\ 1 & 1 & 1 & x & 1 \\ 1 & 1 & 1 & 1 & x \end{vmatrix}$ for $x \neq 0, y \neq 0$ then D is (1) divisible by neither x nor y (2) divisible by both x and y (3) divisible by x but not y (4) divisible by y but not x



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2. Let a, b, c be any real numbers. Suppose that there are real numbers x, y, z not all zero such that $x = cy + bz, y = az + cx, z = bx + ay$. Then $a^2 + b^2 + c^2 + 2abc$ is equal to (1) 2 (2) 1 (3) 0 (4) 1

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3. If $\alpha, \beta \neq 0$, and $f(n) = \alpha^n + \beta^n$ and

$$\begin{vmatrix} 3 & 1 + f(1) & 1 + f(2) \\ 1 + f(1) & 1 + f(2) & 1 + f(3) \\ 1 + f(2) & 1 + f(3) & 1 + f(4) \end{vmatrix} = K(1 - \alpha)^2(1 - \beta)^2(\alpha - \beta)^2$$

, then K is equal to

(1) $\alpha\beta$

(2) $\frac{1}{\alpha\beta}$

(3) 1

(4) -1





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4. The set of all values of λ for which the system of linear equations : $2x_1 - 2x_2 + x_3 = \lambda x_1$ $2x_1 - 3x_2 + 2x_3 = \lambda x_2$ $-x_1 + 2x_2 = \lambda x_3$ has a non-trivial solution, (1) is an empty set (2) is a singleton (3) contains two elements (4) contains more than two elements



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5. The system of linear equations $x + \lambda y - z = 0$ $\lambda x - y - z = 0$ $x + y - \lambda z = 0$ has a non-trivial solution for : (1) infinitely many values of λ . (2) exactly one value of λ . (3) exactly two values of λ . (4) exactly three values of λ .



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6. If S is the set of distinct values of ' b ' for which the following system of linear equations $x + y + z = 1$ $x + ay + z = 1$ $ax + by + z = 0$ has no solution, then S is : (1) a finite set containing two or more elements (2) a singleton set (3) an empty set (4) an infinite set



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